



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/739,356	12/18/2003	Wenkao Hou	GP-303397	9643

7590 06/29/2006

KATHRYN A. MARRA  
General Motors Corporation  
Legal Staff, Mail Code 482-C23-B21  
P.O. Box 300  
Detroit, MI 48265-3000

EXAMINER

SCHATZ, CHRISTOPHER

ART UNIT	PAPER NUMBER
----------	--------------

1733

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/739,356

Applicant(s)

HOU ET AL.

Examiner

Christopher T. Schatz

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-7 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Double Patenting***

1. Applicant's Terminal Disclaimers filed on April 24, 2006 have been approved. As a result, the rejections made in sections 6-8 of the office action dated December 28, 2005 have been withdrawn.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The last line of claim 5 recites a joining location at "said interface." While applicant does reference "interfaces" in claim 3, claim 5 does not specifically recite which of the "interfaces" applicant is referring to.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1733

5. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by McCorvey et al. '283 (newly cited).

McCorvey et al. discloses a method of joining dissimilar materials, said method comprising the steps of: driving a welding member 10 through at least a portion of a first material 35 and into contact with at least a portion of a second material 34, said second material being dissimilar from said first material; and passing an electrical current through said welding member and said second material to fuse said welding member and said second material (figures 2, 4, 7, column 5, lines 16-66). As to claim 2, McCorvey discloses a method further comprising: providing said welding member with an enlarged portion 14 so as to trap said first material between said enlarged portion and said second material (figures 2, 4, 7).

6. Claims 1-4 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Sunamoto et al. '498 (newly cited).

Sunamoto et al. discloses a method of joining dissimilar materials, said method comprising the steps of: driving a welding member W5 through at least a portion of a first material W1 and into contact with at least a portion of a second material W2, said second material being dissimilar from said first material; and passing an electrical current through said welding member and said second material to fuse said welding member and said second material (figures, column 3, lines 10-37). As to claim 2, Sunamoto et al. discloses a method further comprising: providing said welding member with an enlarged portion W4 so as to trap said first material between said enlarged portion and said second material (figures). As to claim 3, Sunamoto et al. discloses a method of joining dissimilar materials, said method comprising the steps of: placing a first component against a

Art Unit: 1733

second component at a predetermined joining location, wherein the first and second components are composed of dissimilar materials; driving a self-piercing rivet through said first component and into said second component to mechanically attach said first component to said second component at said joining location; passing an electrical current through said self-piercing rivet and said second component at said joining location to fuse material at interfaces of at least said rivet and said second component; and stopping the flow of electrical current to solidify the fused material and form a welded bond between at least said rivet and said second component (column 3, lines 10-43, column 5, line 3 – column 6, line 40); and stopping the flow of electrical current to form a welded bond between at least said rivet and said ferrous component. Specifically, applicant is directed to figure 3, which shows that current is stopped after a period of time. As to claim 4, Sunamoto et al. discloses a method further comprising passing said electrical current by contacting said rivet with a first electrode and contacting said second component with a second electrode at a second surface opposite said joining location and using said electrodes to pass said current through said rivet and second component (column 5, line 3 – column 6, line 40).

As to claim 7, Sunamoto et al. discloses a method of joining dissimilar materials, said method comprising the steps of: pressing said non-ferrous component against one surface of said ferrous component at a predetermined joining location using a first electrode assembly to press against said non-ferrous component and a second electrode against another surface of said ferrous component; driving a self-piercing ferrous rivet through said non-ferrous component using said first electrode and at least into contact with a wall of said ferrous component at said joining location to mechanically attach said

Art Unit: 1733

non-ferrous component to said ferrous component; and passing an electrical current through said electrodes, said ferrous rivet, and said ferrous component at said joining location to fuse at least said ferrous rivet to said ferrous component (column 3, lines 10-43, column 5, line 3 – column 6, line 40); and stopping the flow of electrical current to form a welded bond between at least said rivet and said ferrous component. Specifically, applicant is directed to figure 3, which shows that current is stopped after a period of time.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over McCorvey et al.

McCorvey discloses a method of joining dissimilar materials, said method comprising the steps of: placing a first component against a second component at a predetermined joining location (column 5, lines 16-23), wherein the first and second components are composed of dissimilar materials; driving a self-piercing rivet through said first component and into said second component to mechanically attach said first component to said second component at said joining location; passing an electrical current through said self-piercing rivet and said second component at said joining location to fuse material at interfaces of at least said rivet and said second component

Art Unit: 1733

(column 5, lines 16-66, column 6, lines 41-45). Applicant should note that although the reference does not explicitly recite the exact language “stopping the flow of electrical current to solidify the fused material and form a welded bond between at least said rivet and said second component,” examiner asserts that such a step is inherent to bonding the process. Regardless, it would have been obvious to one of ordinary skill in the art at the time the invention was made to stop the flow of electrical current to solidify the fused material to form a welded bond. The disclosure by McCovery that a “weld” is formed indicates such obviousness. As to claim 4, McCovery et al. discloses a method further comprising passing said electrical current by contacting said rivet with a first electrode and contacting said second component with a second electrode at a second surface opposite said joining location and using said electrodes to pass said current through said rivet and second component (column 5, lines 50-66, column 6, lines 41-45, figures 2, 4, 7). As to claim 6, McCovery et al. discloses a method further comprising engaging said first component at said joining location with an electrode assembly comprising a first electrode 41 and a hollow cylindrical electrode tool 37, said tool being adapted to encompass said rivet and said first electrode and to exert a clamping force on said first component; engaging said second component at a second surface with a second electrode 46 adapted to conform to said second surface for clamping and electrical contact; and using said electrodes to pass said current through said rivet and second component, said current flowing around or through said second component from said second surface to said joining location located at said interface (figures 2, 4, 7, column 5, lines 16-66, column 6, lines 41-45). Applicant should note that the language “tool being adapted to encompass said rivet and said first electrode” does not further limit the method, and

Art Unit: 1733

examiner asserts that the tool 37 shown in figure 4 is “adopted” to encompass the rivet because McCovery et al. discloses that the magnet 40 and electrode 42 are removable, and it is clear from the figure the rivet is capable of being place in the cylinder.

As to claim 6, McCorvey et al. discloses a method further comprising engaging said first component at said joining location with an electrode assembly comprising a first electrode 41 and a hollow cylindrical electrode tool 37, said tool being adapted to encompass said rivet and said first electrode and to exert a clamping force on said first component; engaging said second component at a second surface with a second electrode 46 adapted to conform to said second surface for clamping and electrical contact; placing said rivet in said electrode tool and driving said rivet through said first component into said second component; and using said electrodes to pass said current through said rivet and second component, said current flowing around or through said second component from said second surface to said joining location located at said interface (figures 2, 4, 7, column5, lines 16-66, column 6, lines 41-45). Applicant should note that the disclosure on column 5, lines 35-36, where McCovery et al. discusses the placement of rivet head into the small recess, reads on the limitation “placing said rivet in said electrode tool” because examiner considers the rivet head to be part of the rivet.

### ***Response to Amendment***

The Declaration under 37 CFR 1.132 filed April 24, 2006 is sufficient to overcome the rejection of claims 1-7 based upon applicant’s sworn statements.



Art Unit: 1733

*Response to Arguments*

Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

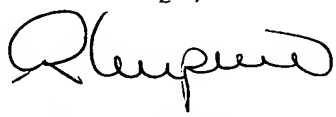
*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher T. Schatz whose telephone number is 571-272-1456. The examiner can normally be reached on 8:00-5:30, Monday -Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Christopher T. Schatz

  
RICHARD CRISPINO  
SUPERVISORY GENERAL EXAMINER  
TECHNOLOGY CENTER